State Water Project Reliant Area Solutions

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Las Virgenes MWD Board Meeting
January 18, 2022

SWP Reliant Area Solutions: Overview

Issue

Some areas are particularly vulnerable to extreme drought on the SWP system: SWP Reliant Areas

Committed to Resolve this Issue

Identifying and implementing measures to ensure all portions of the service area attain a high level of reliability against multi-year, severe droughts

Current Drought Emergency

Actively manage through current extreme conditions

Future Extreme Drought

Urgently prepare for the next extreme drought

SWP Reliant Area Solutions: Overview

Issue

Some areas are particularly vulnerable to extreme drought on the SWP system: SWP Reliant Areas

Committed to Resolve this Issue

Identifying and implementing measures to ensure all portions of the service area attain a high level of reliability against multi-year, severe droughts

What we have done

Took incremental and continuous action in preparation to respond to drought

Got through the two driest years on record

What we are doing

Continuing to take urgent action to address this potentially ongoing unprecedented drought emergency

What we will do

Continue to address this drought and prepare for the next with expedited drought action planning and development

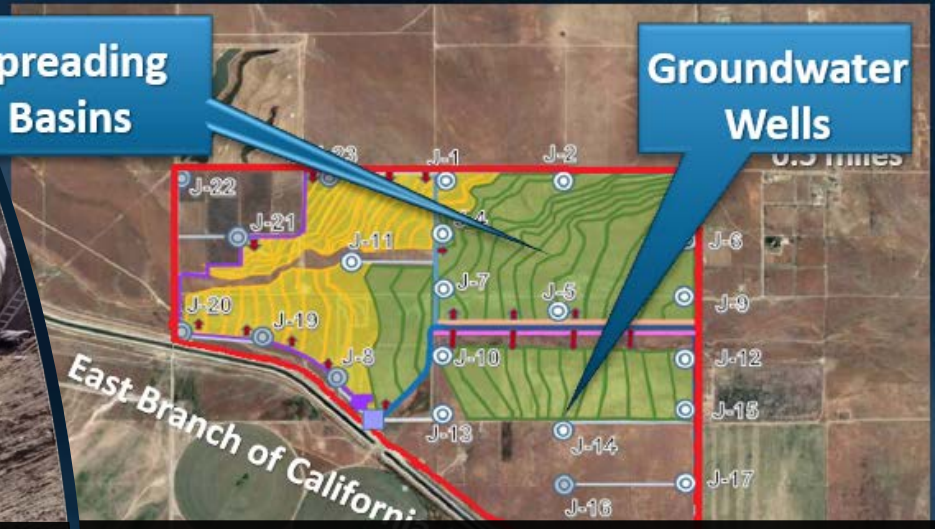
Resolve this issue in collaboration with our member and partner agencies

What We Have Done

Took Incremental and Continuous Action to Address the Issue

- Made some big gains since the last severe drought in 2014-15
- Provided increased reliability for this current severe drought

Added new interconnections and strengthened existing infrastructure to enable DVL water to be delivered to Mills



Developed a new storage program with AVEK and began construction on facilities for increased supply availability

Rehabilitated Greg Ave. Pump Station for improved reliability of Colorado River water to the SWP Reliant Area

Implemented WSDM actions, shored up CRA delivery capabilities, continued investments in water-use efficiency and local supplies

What We Are Doing

Taking Urgent Action to Address this Current Drought Emergency

Lake Oroville on October 28, 2021

What We Are Doing

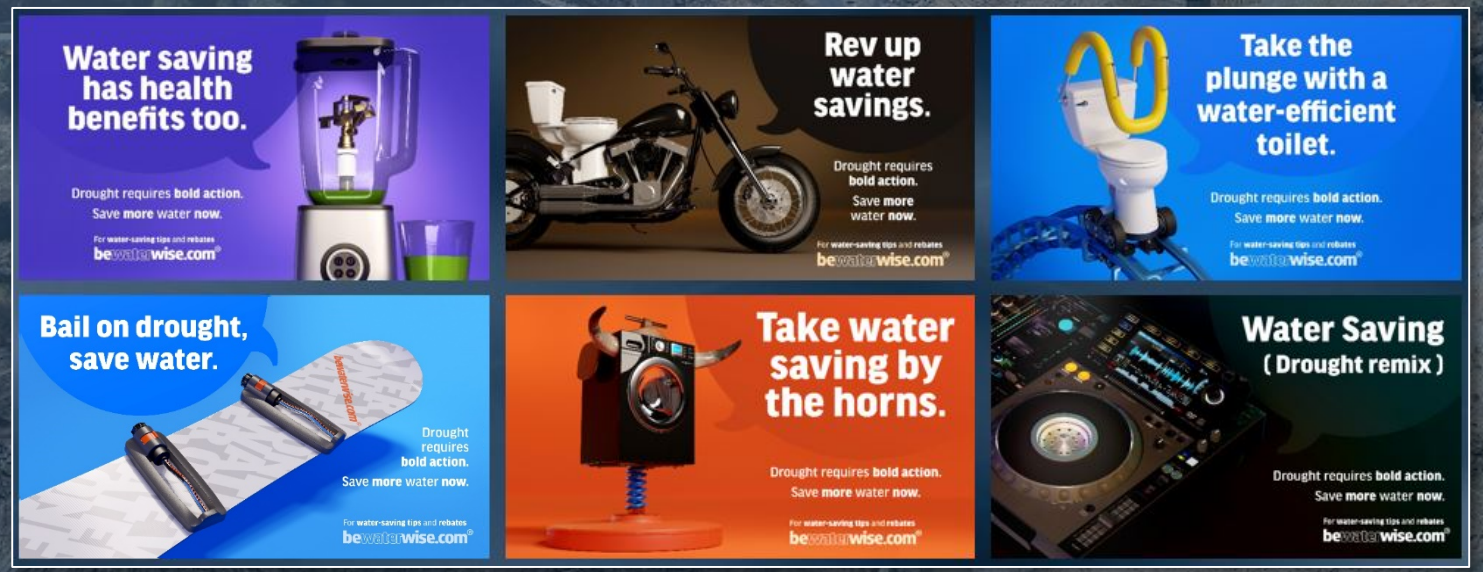
Taking Strategic WSDM and Water Management Actions

News for Immediate Release__

Metropolitan Declares Drought Emergency

Metropolitan Board of Directors calls for increased conservation and expands water efficiency programs

Nov. 9, 2021



Strategically Utilizing WSDM Storage

Lake Oroville on October 28, 2021

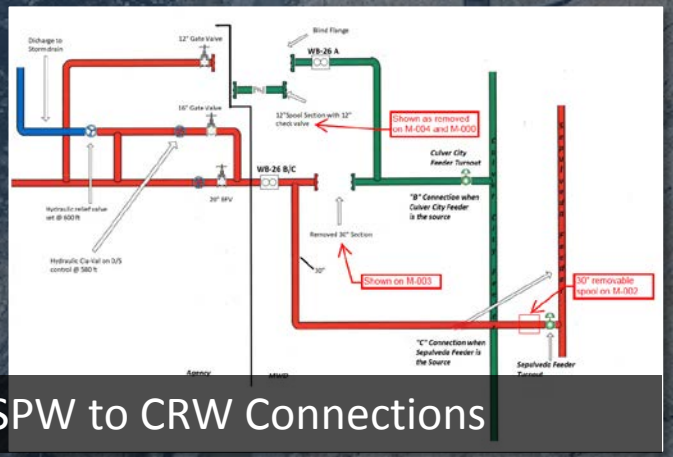
What We Are Doing

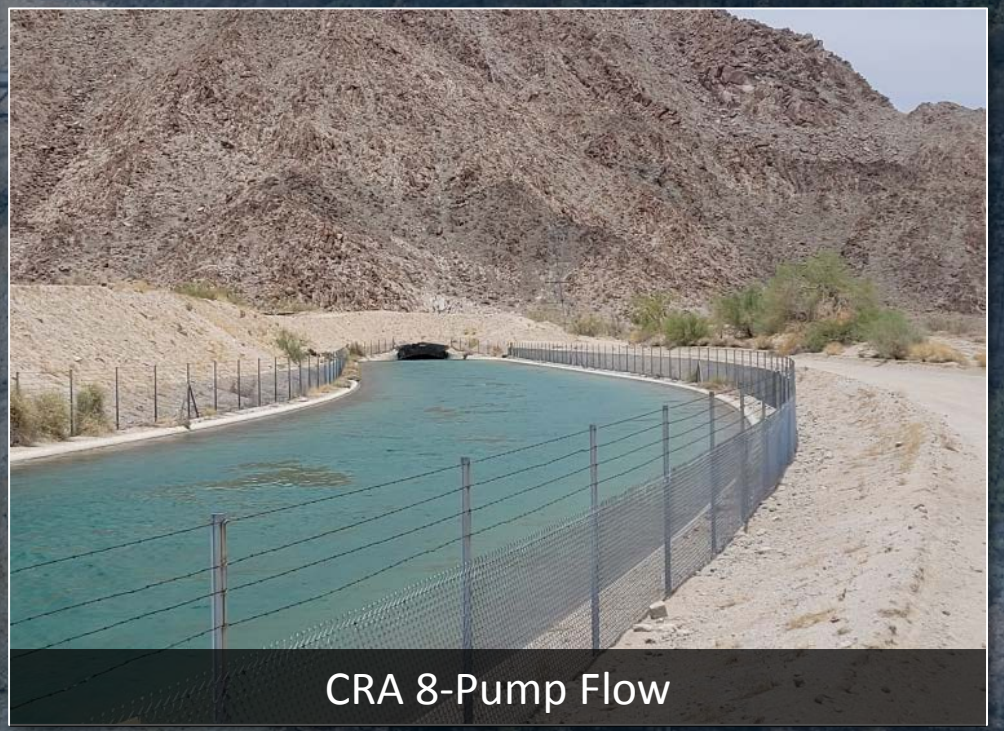
Taking Extraordinary Operational Drought Actions

Ongoing Extraordinary Drought Actions to Preserve SWP Supplies

Maximizing reliability with extraordinary operational drought actions

New Program to Shift from SPW to CRW Connections



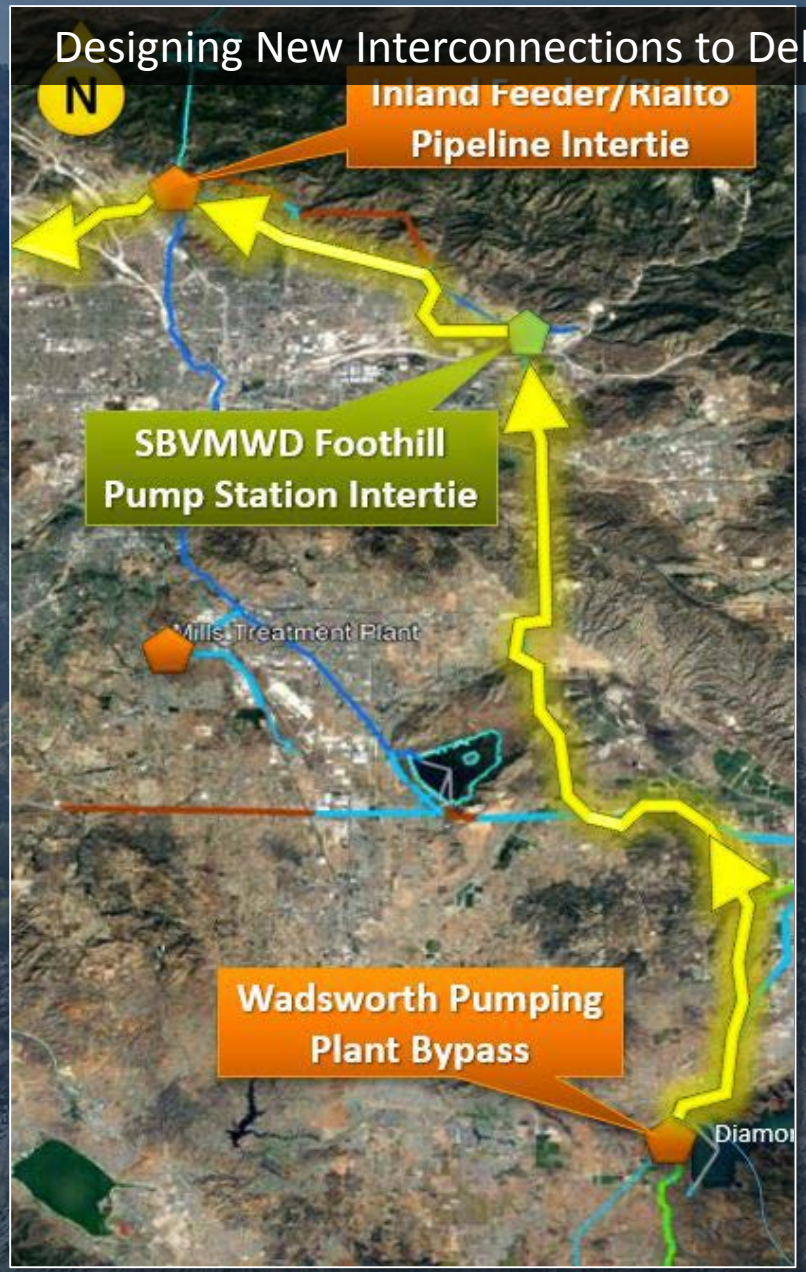


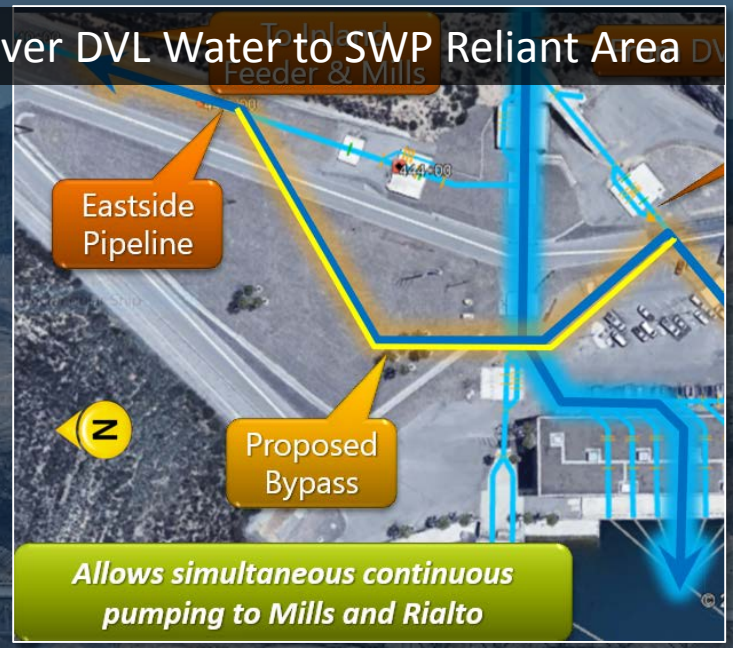
CRA 8-Pump Flow

Lake Oroville on October 28, 2021

What We Are Doing

Taking Action on New Infrastructure Investments to Deliver Other Sources of Water





News for Immediate Release__

Metropolitan Board Takes Actions to Alleviate Drought

New investments, partnerships increase reliability during challenging times

Dec. 14, 2021

Lake Oroville on October 28, 2021

What We Are Doing

Taking Action on Water Exchanges

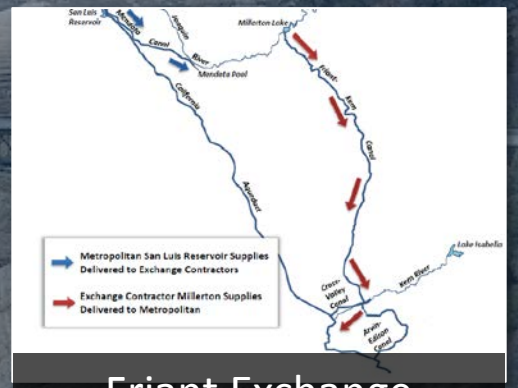
Water Purchase and Use of Capacity at Semitropic

News for Immediate Release

Agencies Partner to Boost Water Supplies for Southern California

Metropolitan-Water Authority agreement responds to governor's call for drought actions

Dec. 1, 2021



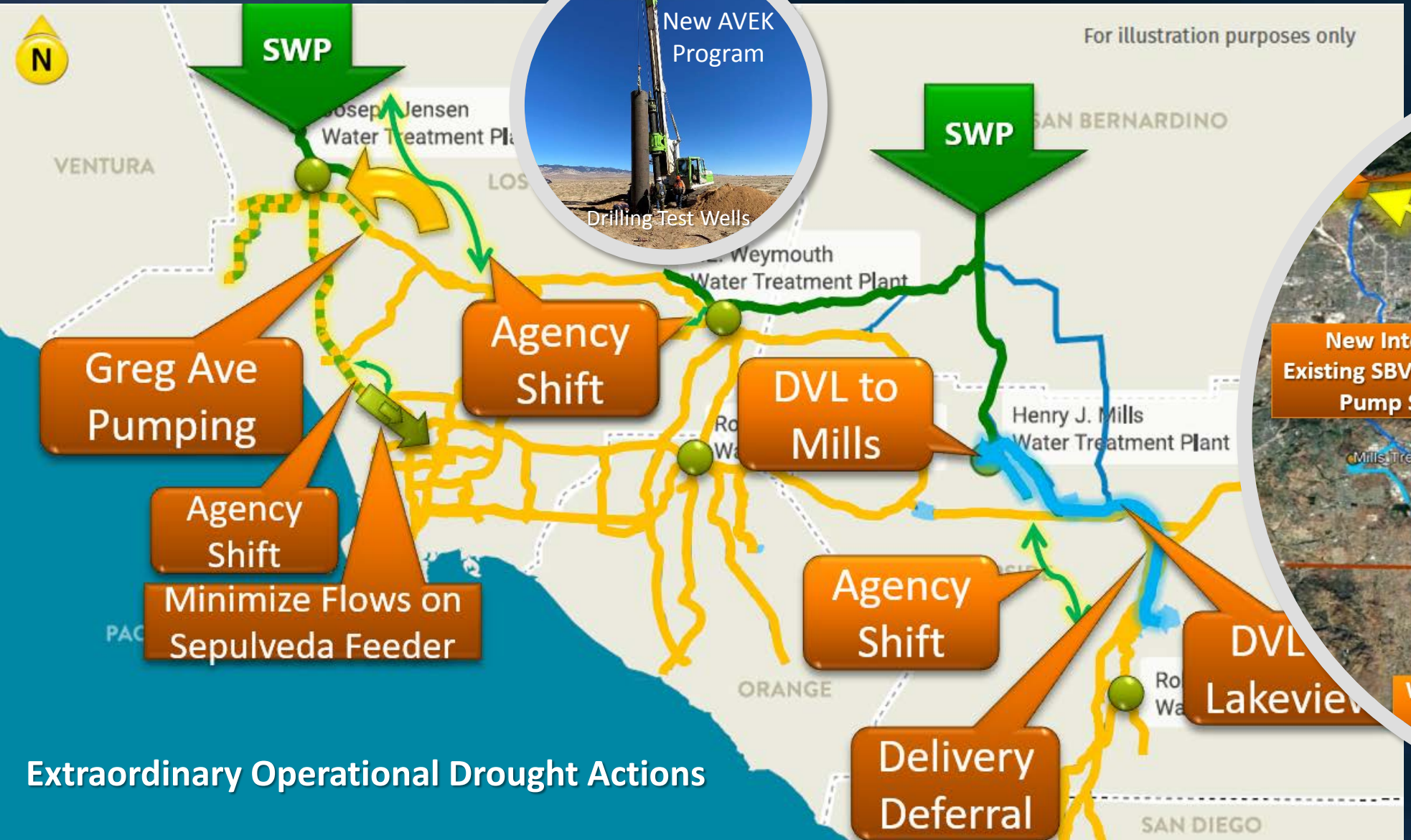
Friant Exchange

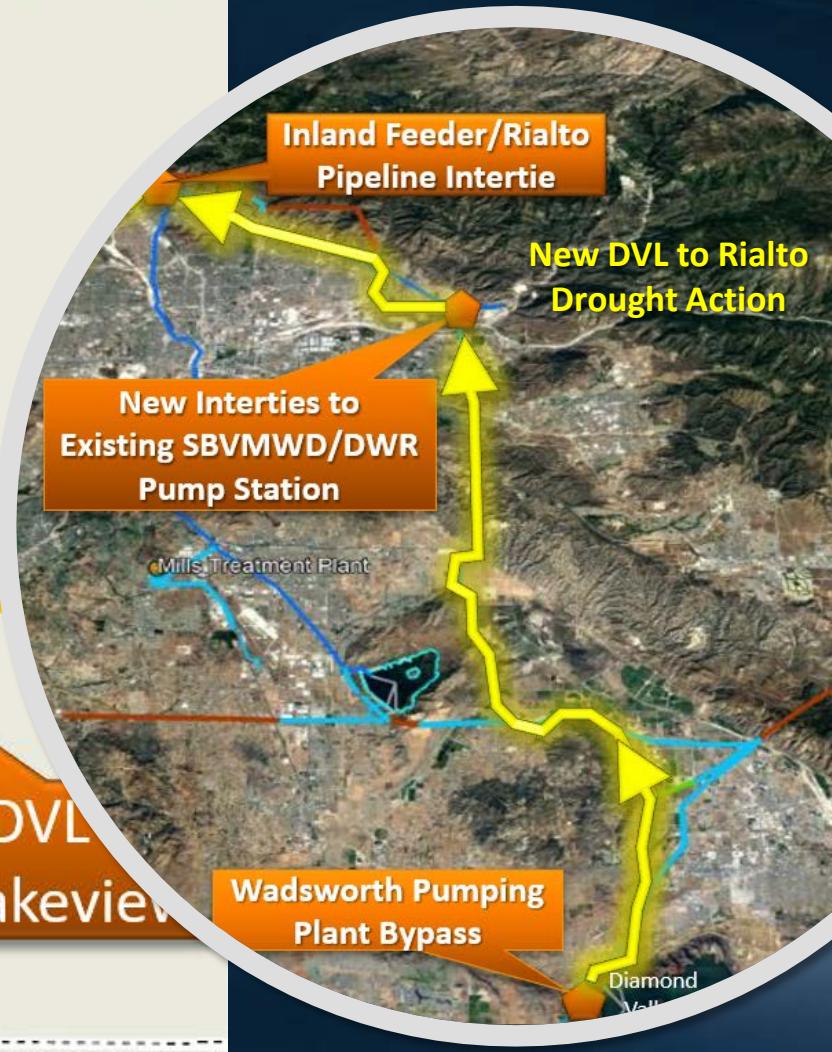
Mutual Aid Agreements with Other SWP Contractors

Lake Oroville on October 28, 2021

Benefits of Newly Developed/Planned Actions

What if current/near-term actions were available at the start of a drought like this current one?

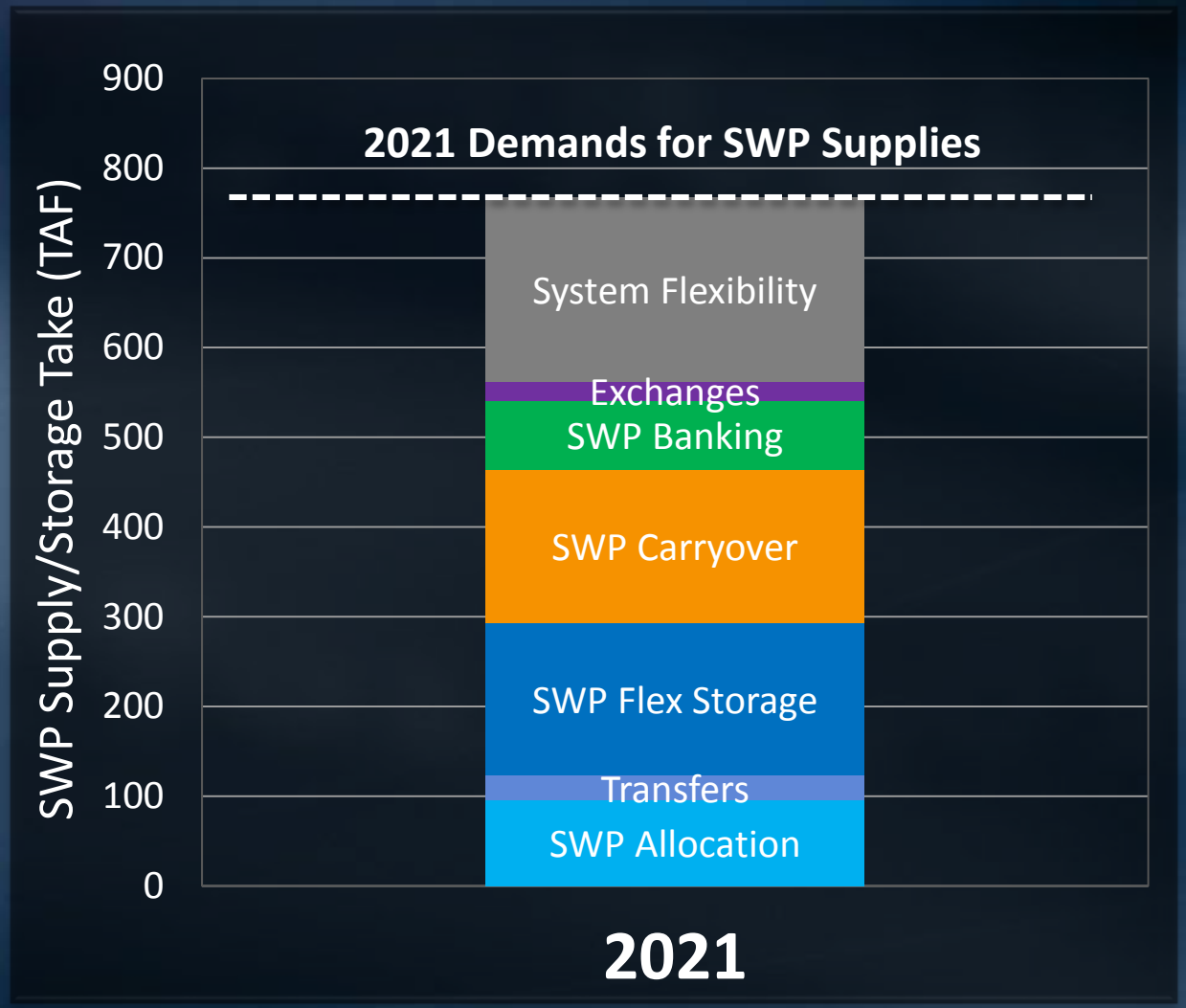




Actions Already Underway Greatly Improve Future Reliability

- Interconnections significantly reduce the demand for State Water Project Supplies
  - These investments allow stored water and Colorado supplies to serve a larger portion of the service area
  - This allows SWP supplies to be saved for areas that need it
- More storage available on SWP system for MWD's use in future dry sequences
  - AVEK storage program adds 280 TAF storage and 70 TAF annual return in dry years

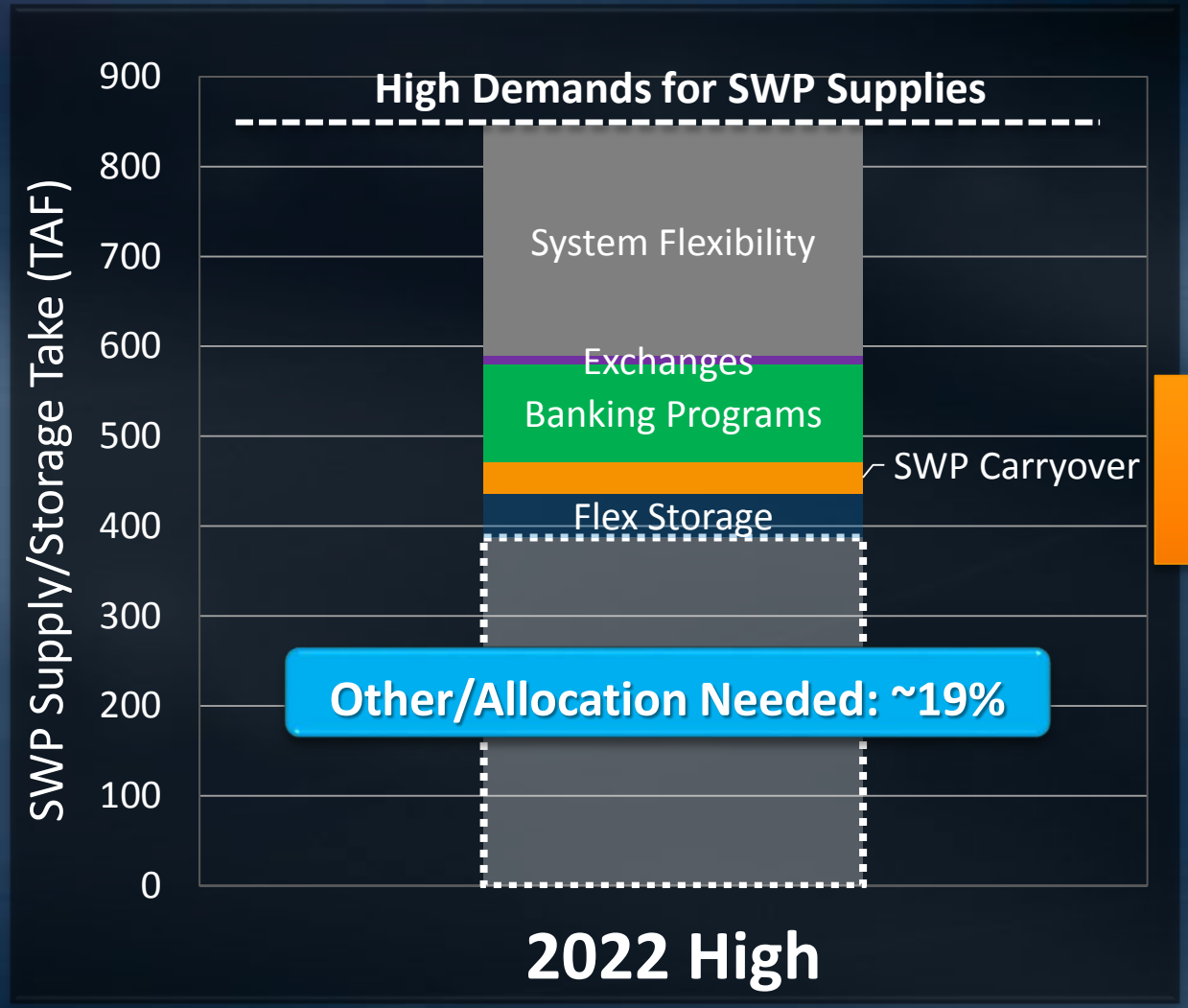
"What If" All Near-term Actions Were Available Starting In 2020?
(Reflecting investments already underway)



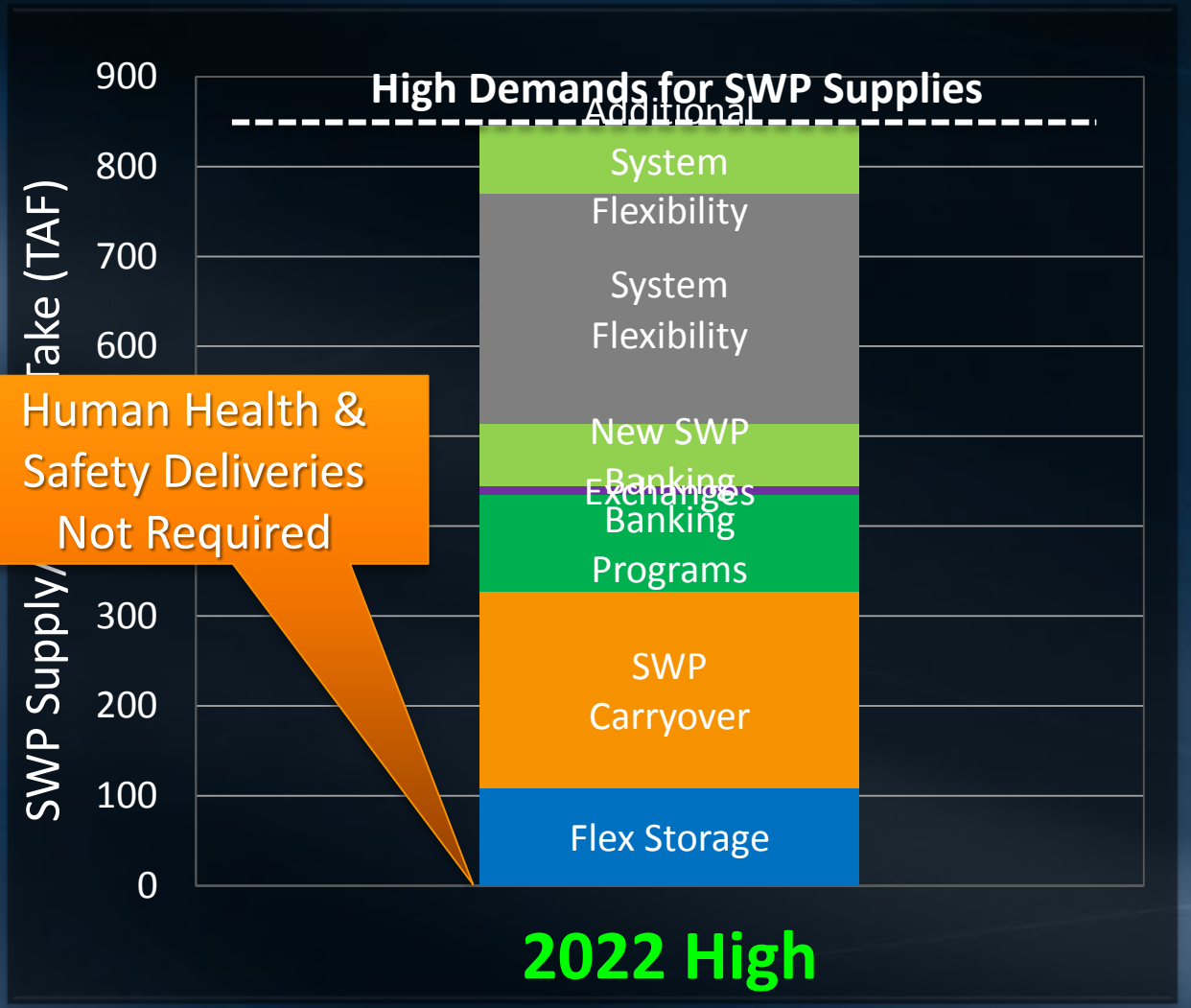
Current Scenario

"What If" Planning Scenario

"What If" All Near-term Actions Were Available Starting In 2020?
(Reflecting investments already underway)



Current Planning Scenario



Drought Actions "What If" Planning Scenario

Investments Already Under Way Would Have Eliminated The Need To Declare An Emergency

Even If 2022 Ends With A Zero SWP Allocation

…….but we aren’t stopping there

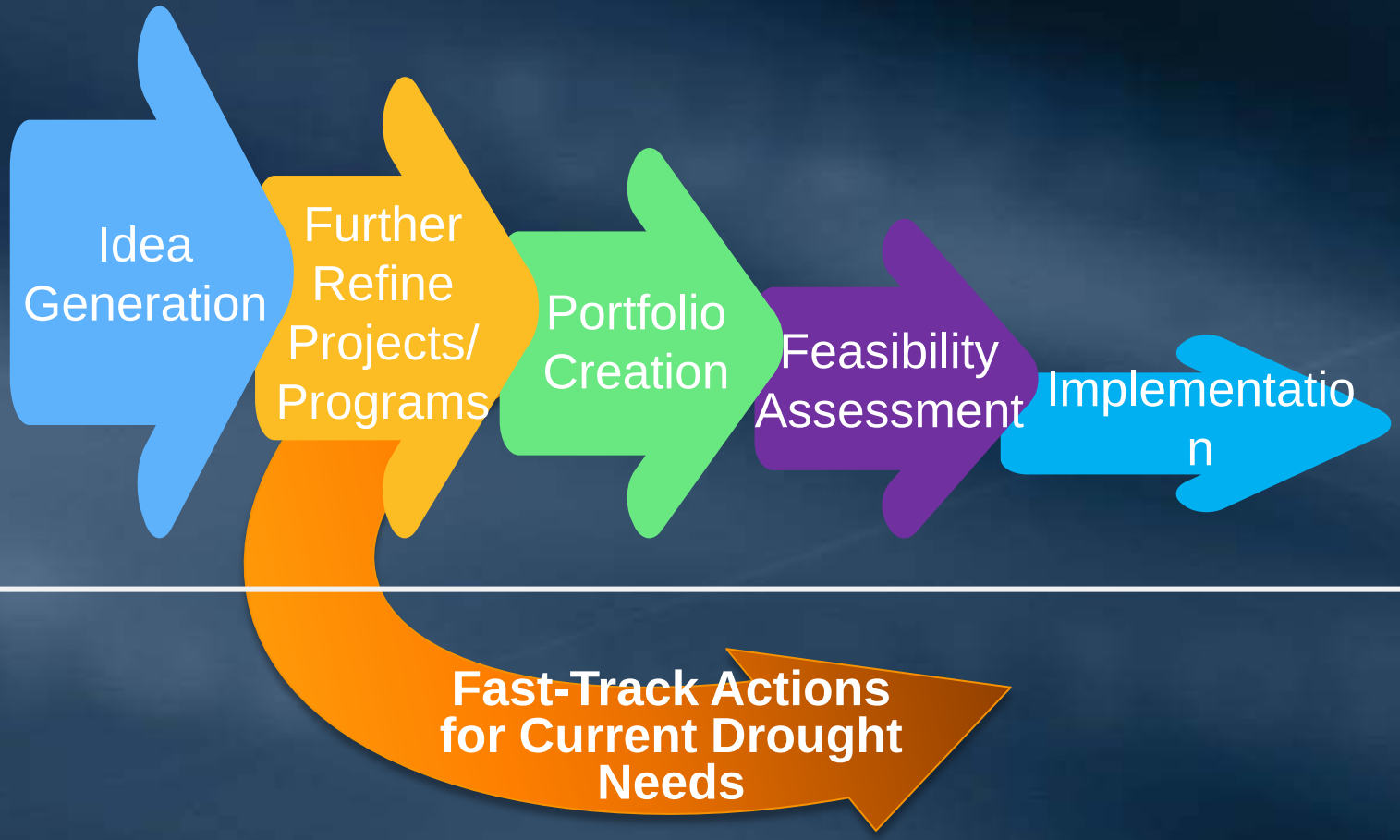
What We Will Do

Continue to Address this Drought and Prepare for the Next

> ***Identify and implement measures to ensure all portions of the service area attain a high level of reliability against multi-year, severe droughts. Measures include, but are not limited to, system improvements, local water supply development, new water storage opportunities, and water efficiency gains***
>
> *— November 2021 Resolution of the Board of Directors of MWD*

Drought Action Planning and Development

Accelerated Actions for the Near- and Long-Term



Future Extreme Drought

Current Drought Emergency

Collaborative Process with Member and Partner Agencies

Drought Action Planning and Development

Addressing Potential Severe Drought Extending into 2022+

Current Drought Emergency

Actively manage through current extreme conditions

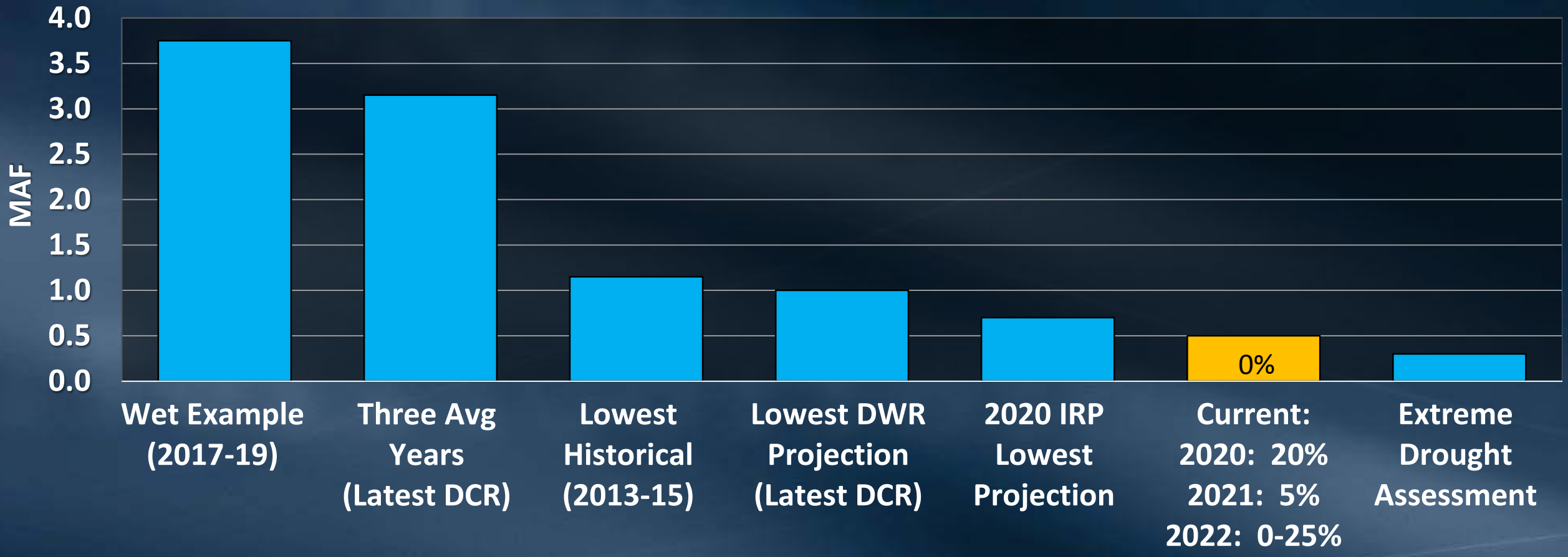
Opportunities w/ Member Agencies
More operational shift cost-offset opportunities, new programs (e.g., reverse cyclic), deferring deliveries, other

Additional Supplies
Exchanges/transfers, expediting withdrawal capability from new AVEK program, SBVMWD groundwater, CRA flow improvement projects

Near-Term Infrastructure Drought Actions
Expedite relatively near-term projects, such as DVL to Rialto projects

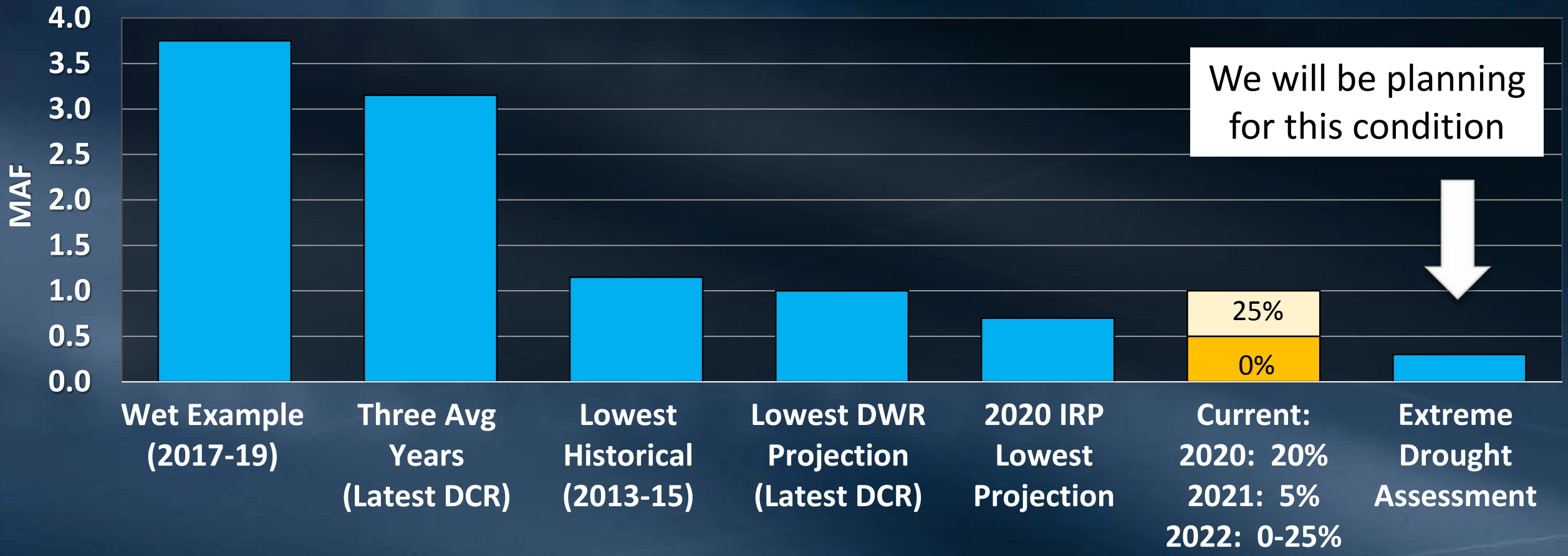
WSDM and Water Management
Strategic withdrawals from storage, managing Human Health & Safety water, utilization of Perris Flex storage

IRP Assessment Captures SWP Risks (three-year drought) and Opportunities (move water to storage)



**Values rounded to 50 TAF increments. Values do not include Article 21 supplies.*

IRP Assessment Captures SWP Risks (three-year drought) and Opportunities (move water to storage)



**Values rounded to 50 TAF increments. Values do not include Article 21 supplies.*

Future Extreme Drought

Examples of Add'l Things Being Considered

Areas to investigate in the IRP Implementation Phase to resolve the "SWP Dependent Area" reliability challenges *over the long-term*

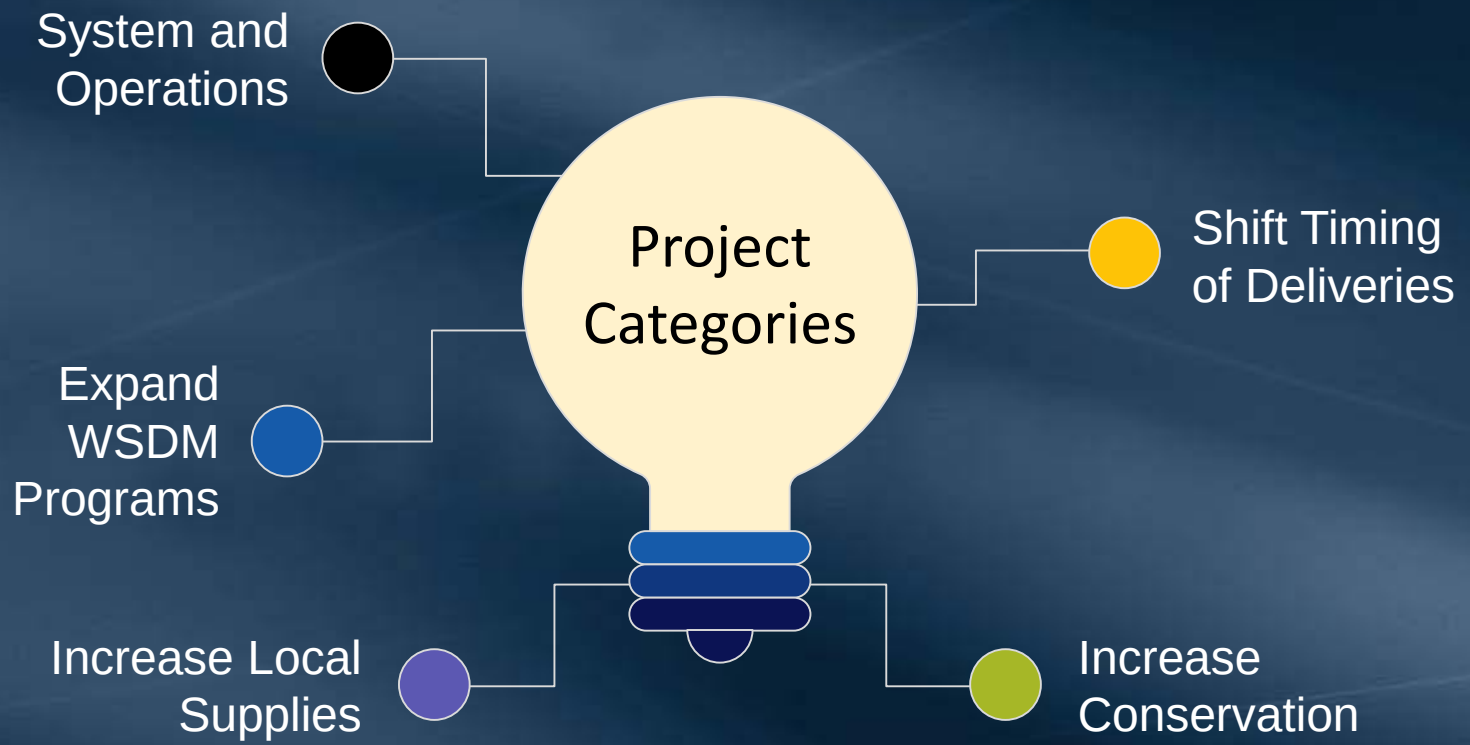
- Investments in distribution system to enhance flexibility
  - Sepulveda Feeder Pumpback
  - Greg Avenue Pumpback Expansion
- Maintaining existing SWP supply reliability
- New supplies/storage accessible to the "SWP Dependent Areas"
  - Second Phase of AVEK Storage (Add'l 280 TAF of storage)
  - Regional Recycled Water Program and other Local Supplies

Drought Action Planning and Development

Proactively Ramped Up Drought Action Planning

Idea Generation

- Generated 130+ creative ideas
- About 50 ideas selected for further study and potential development
- Various project/program types and timing



Drought Action Planning and Development

Continue to Expedite Planning for Mid- and Long-Term Actions

Example Elements

- Fatal flaws?
- Yield/size, cost, online date
- Operational needs
- System impacts, member agency impacts, water quality requirements

Potential Long-Term Project: Greg Avenue Pump Station Expansion

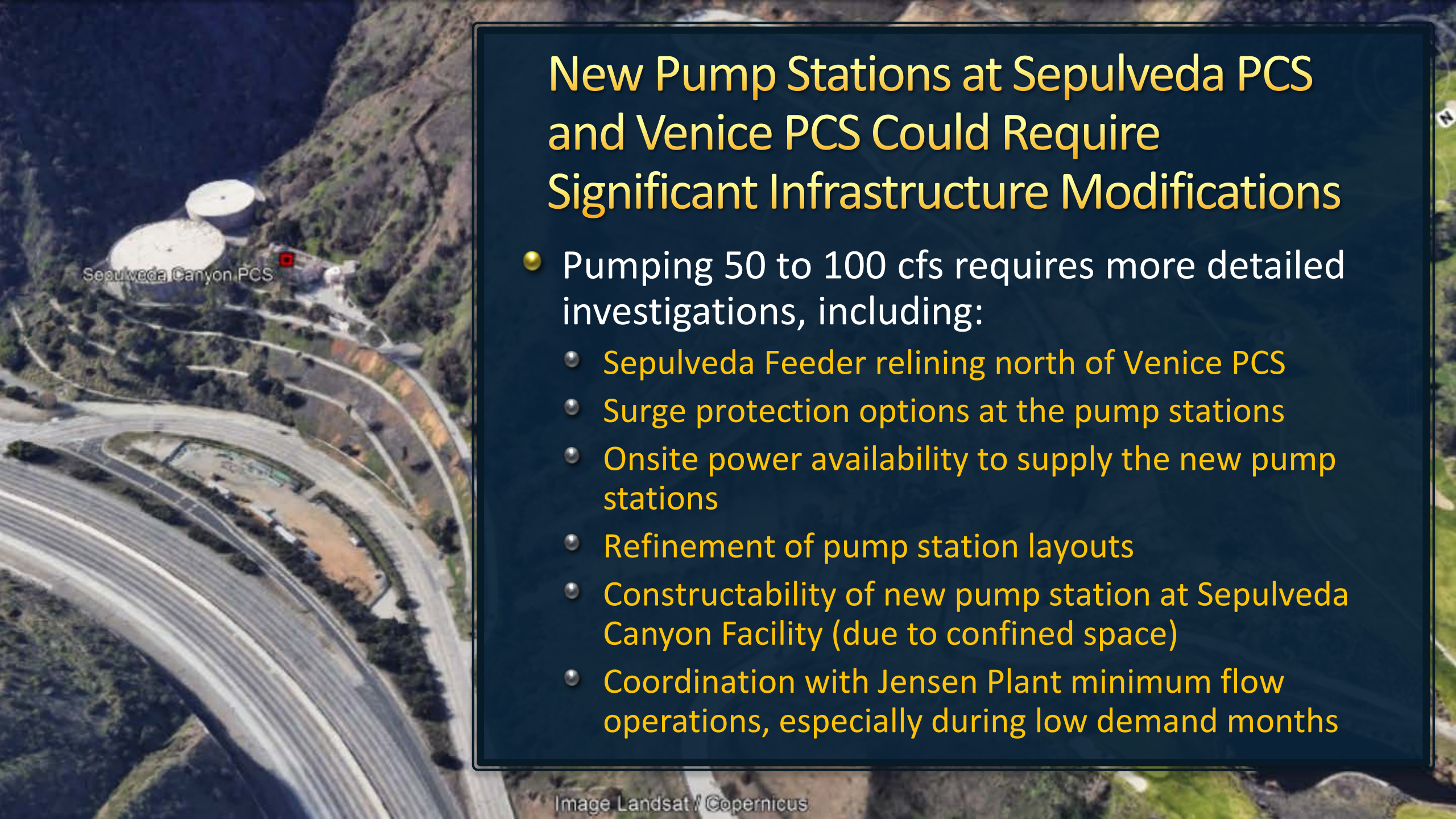
- Greg Avenue Pump Station currently providing up to 55 cfs of CRW to the West Valley area
- Reconnaissance-level studies completed to expand the pump station:
  - Hydraulics/surge protection
  - Pipeline capacity
  - Preliminary facility sizing
  - System operations constraints
- Feasibility study funds required to investigate in greater detail

Feasibility Study Will Review Needed Infrastructure Modifications

- Doubling the pumping capacity requires more detailed investigations, including:
  - Possible parallel piping: upstream and downstream portions of the 48” diameter East Valley Feeder through Burbank, Sun Valley, and San Fernando
  - Increased surge protection capability
  - Various options: additional parallel piping vs. additional booster pump; power service, additional equipment, space availability
  - Coordination with Jensen Plant minimum flow operations, especially during low demand months

Potential Long-Term Project: New Pump Stations at Sepulveda PCS and Venice PCS

- Deliver CRW to the West Valley area from the Central Pool
- Supplement Greg Ave Pump Station deliveries
- Reconnaissance-level studies completed analyzing one or two pump stations:
  - Hydraulics/surge protection
  - Pipeline capacity
  - Preliminary facility sizing
  - System operations constraints
- Feasibility study funds required to investigate in greater detail



New Pump Stations at Sepulveda PCS and Venice PCS Could Require Significant Infrastructure Modifications

- Pumping 50 to 100 cfs requires more detailed investigations, including:
  - Sepulveda Feeder relining north of Venice PCS
  - Surge protection options at the pump stations
  - Onsite power availability to supply the new pump stations
  - Refinement of pump station layouts
  - Constructability of new pump station at Sepulveda Canyon Facility (due to confined space)
  - Coordination with Jensen Plant minimum flow operations, especially during low demand months

Drought Action Planning and Development

Extreme Drought Assessment and Portfolio Creation

Potential needs during a multi-year, severe drought sequence (low SWP allocations)

Ability to meet demands with existing actions/resources

What more may be needed and potential options to get there

High-level evaluation of drought action alternatives and portfolio creation

Drought Action Planning and Development

Evaluating a Variety of Options in Creating a Portfolio

Examples:

	Storage	Groundwater, surface reservoirs	AVEK High Desert Water Bank New surface water reservoir(s) Expansion of existing storage Additional Castaic Flex storage
	Exchanges	Partnerships and agreements for additional water supply	Semitropic Banking increased takes Friant/Arvin-Edison water exchange SBVMWD water exchanges DVL to Rialto (new interconnections)
	Pumping	Reverse flow to deliver other sources of supply	Venice/Sepulveda new pump stations Greg Avenue Pump Station expansion
	Programs	In-region programs with Member Agencies	More Operational Shift Cost-Offset opportunities Reverse Cyclic/ deferred deliveries/ groundwater utilization

6-Month Outlook

Continue to take urgent actions for this and future droughts, including collaboratively creating a high-level drought action portfolio

The End Result of This Process:

Metropolitan and the SWP Reliant Areas will be able to withstand a drought far more extreme than history or DWR planning criteria, without calling for drought reductions

The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way

Deven Upadhyay, Executive Officer
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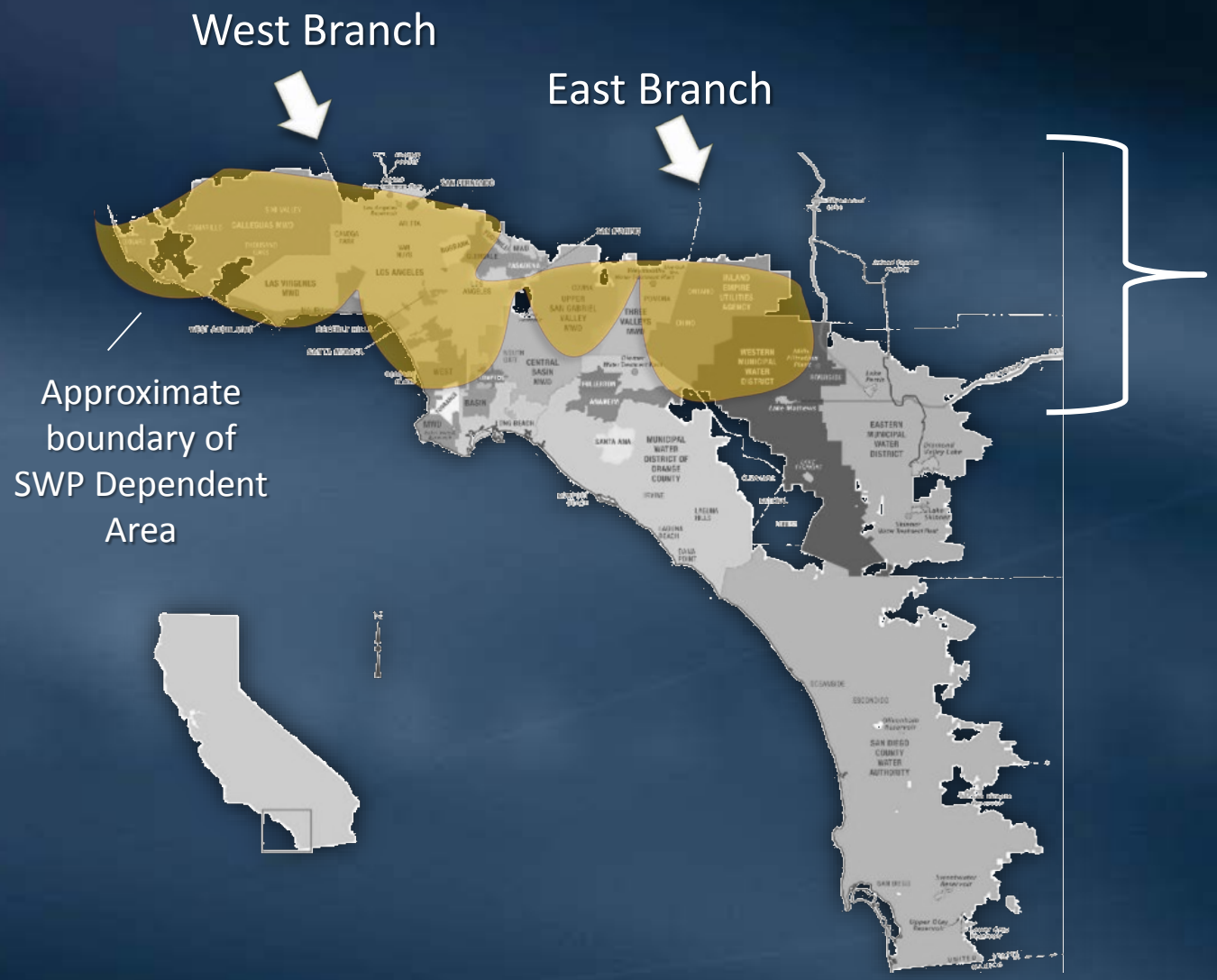
THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

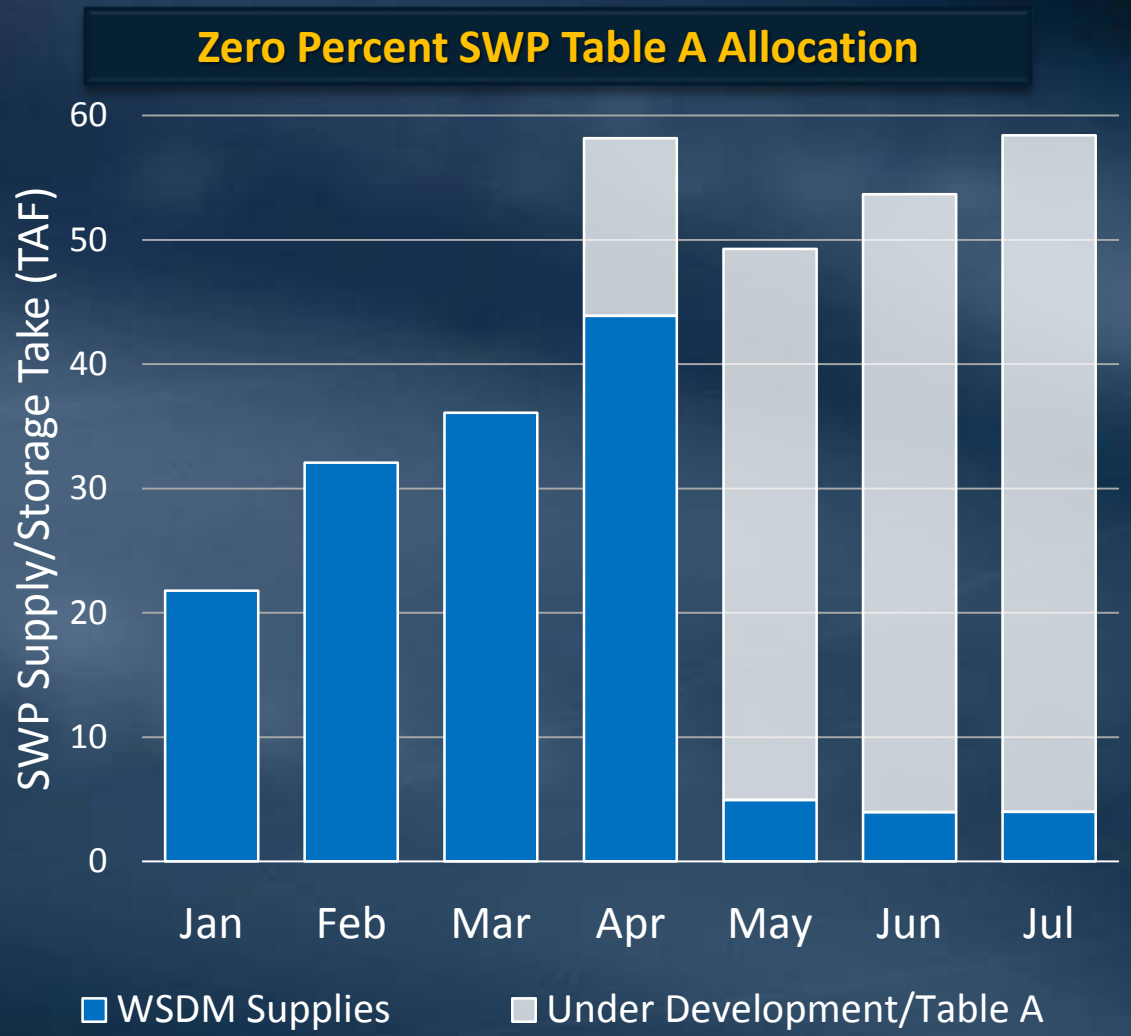
HH&S needs identified for SWP Dependent Area



- Insufficient supplies at a zero percent SWP Table A Allocation to meet "SWP Dependent Area" full demand in 2022
- Metropolitan's total HH&S need is ~270 TAF after factoring in other available supplies and remaining available storage

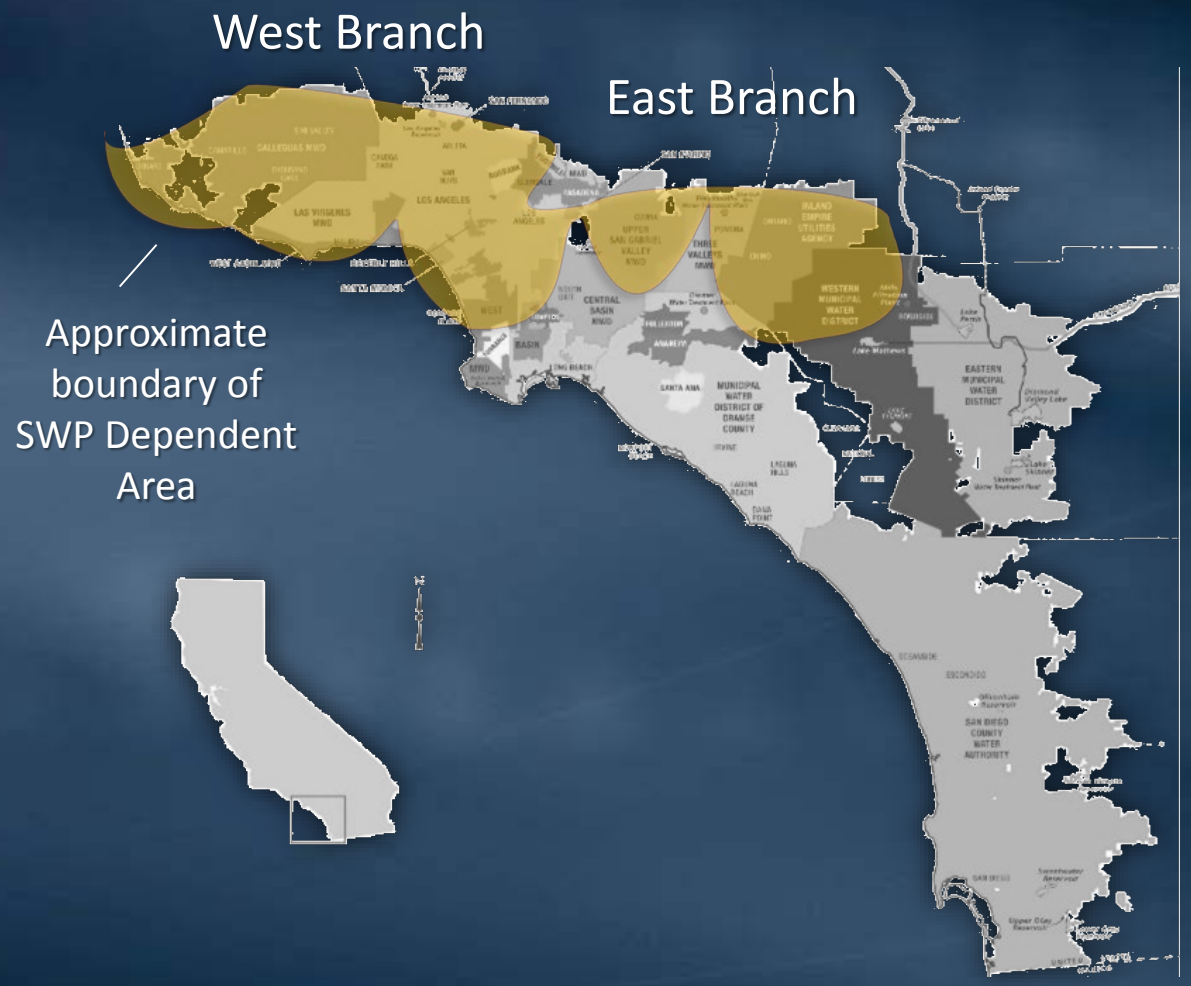
Available supplies sufficient through April

East and West Branch Combined, includes system water for water quality



Additional actions under development include new supply programs and demand management measures including additional conservation measures for SWP Dependent Areas imposed through California Water Code Sections 350 and 375

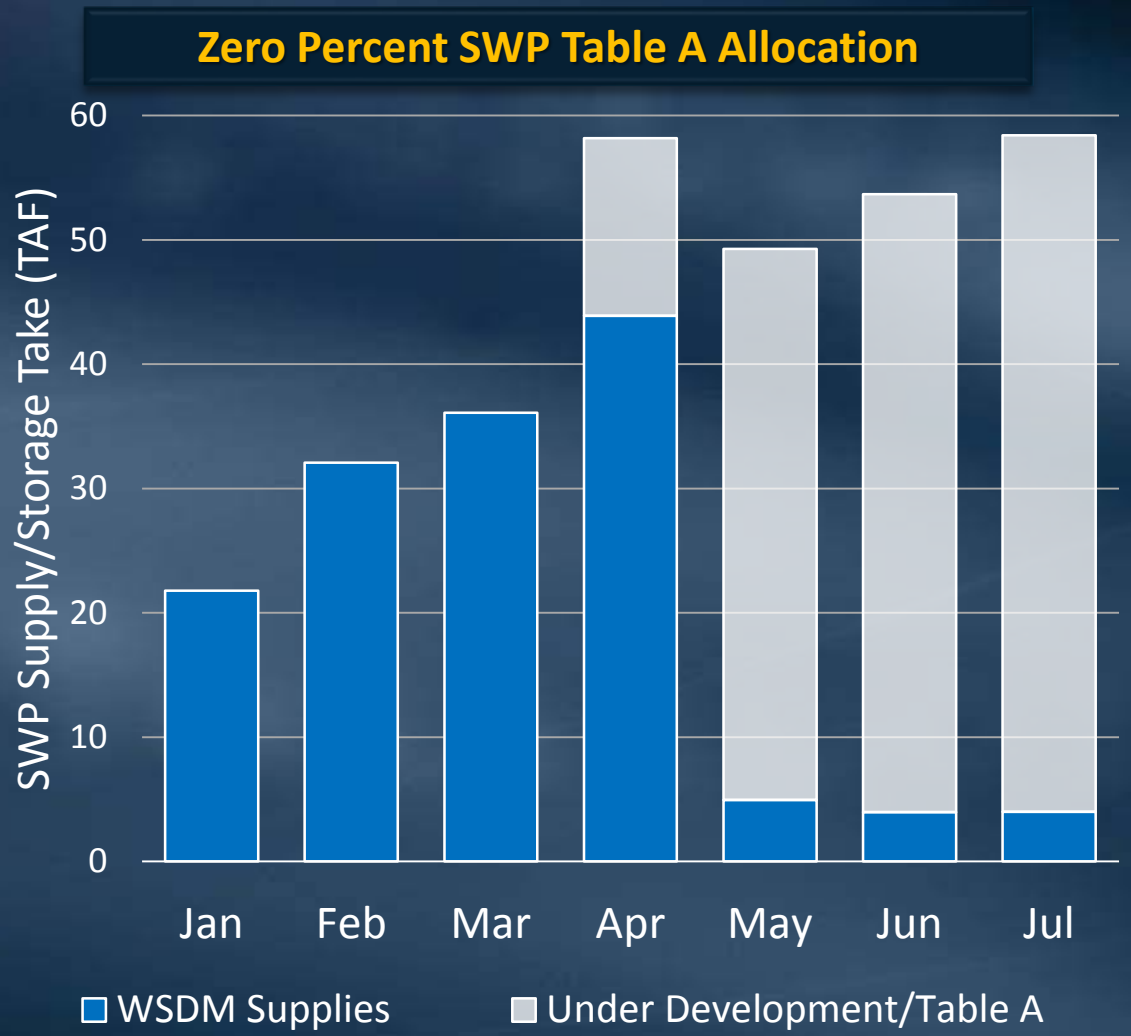
Metropolitan seeks to avoid or defer use of HH&S

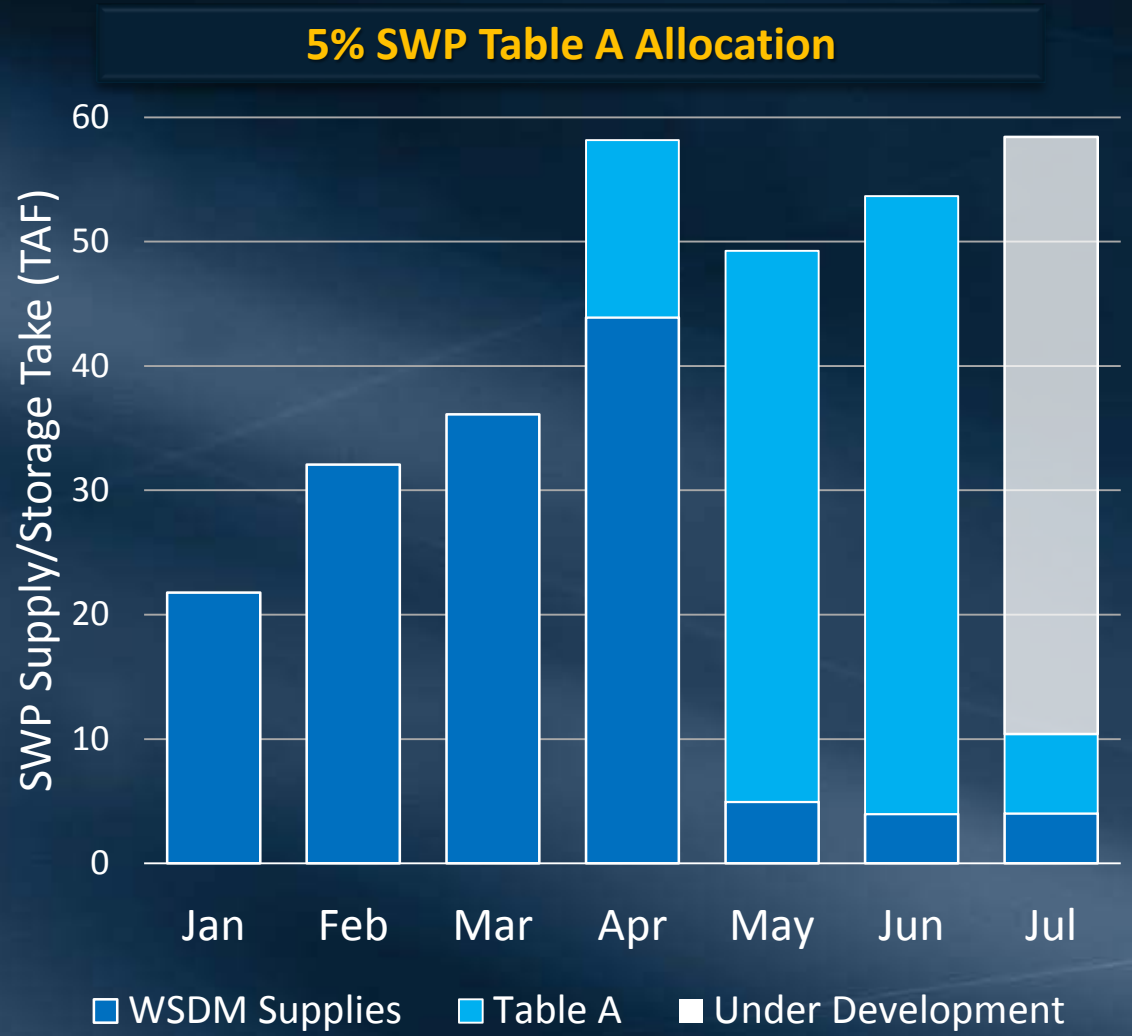


- Metropolitan is coordinating with impacted member agencies and identifying and implementing additional actions to develop new or stretch out existing supplies
- The goal is to avoid the need to take delivery of HH&S water
- Areas receiving HH&S water are expected to limit consumer water use to critical needs only (e.g., no watering of ornamental landscape)

Any Table A Allocation Defers HH&S Initiation

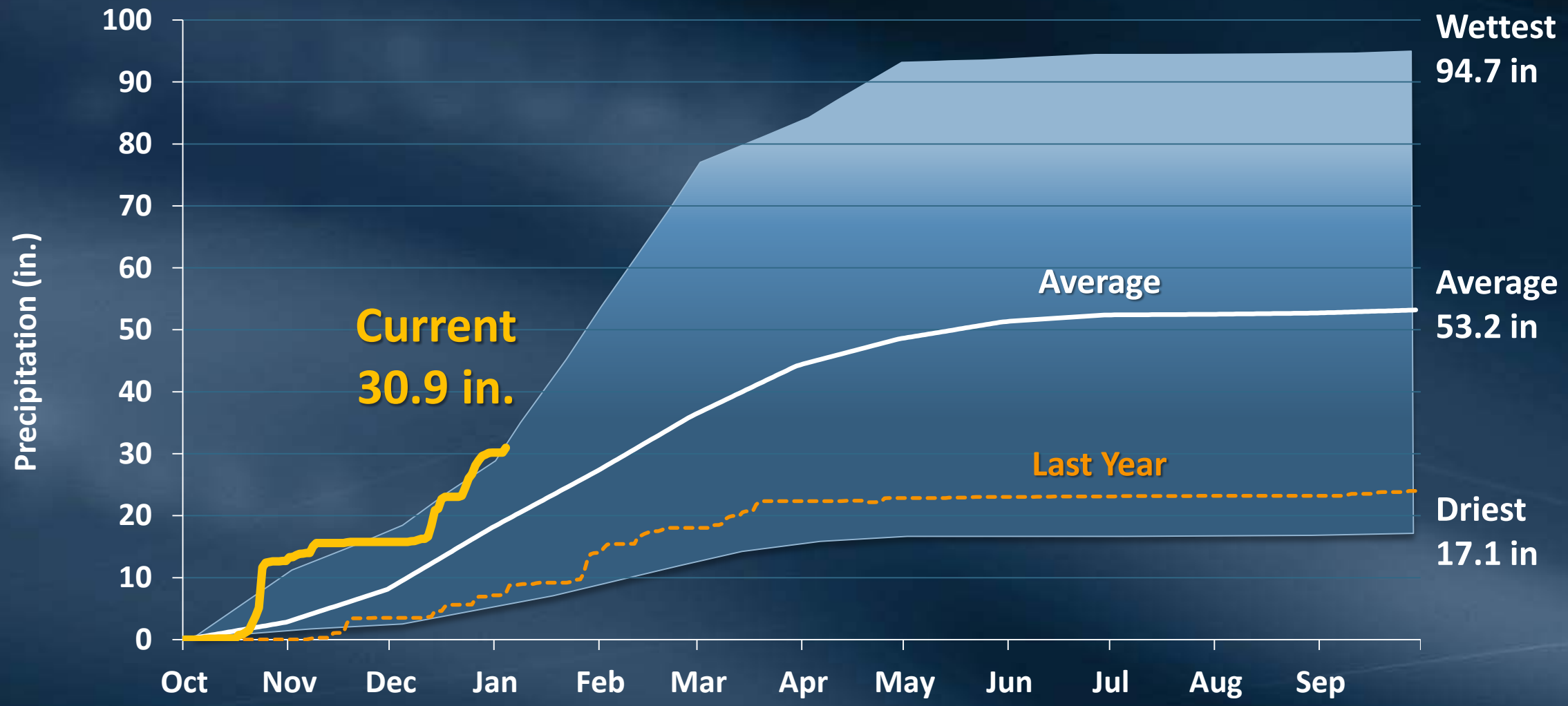
East and West Branch Combined, includes system water for water quality





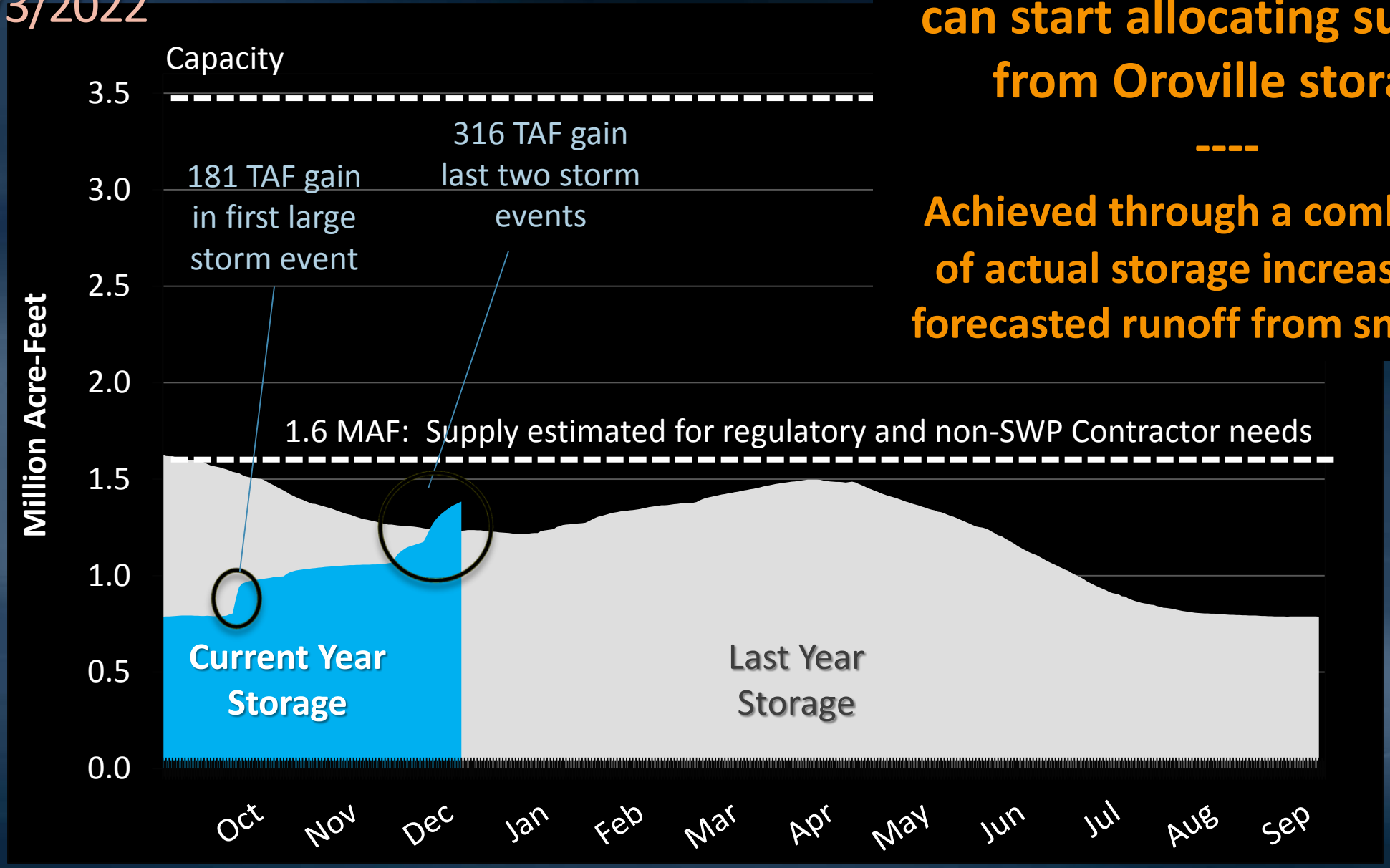
Northern Sierra Precipitation: 8-Station Index

As of 1/4/2022



Lake Oroville

As of 1/3/2022



~216 TAF needed before DWR can start allocating supplies from Oroville storage

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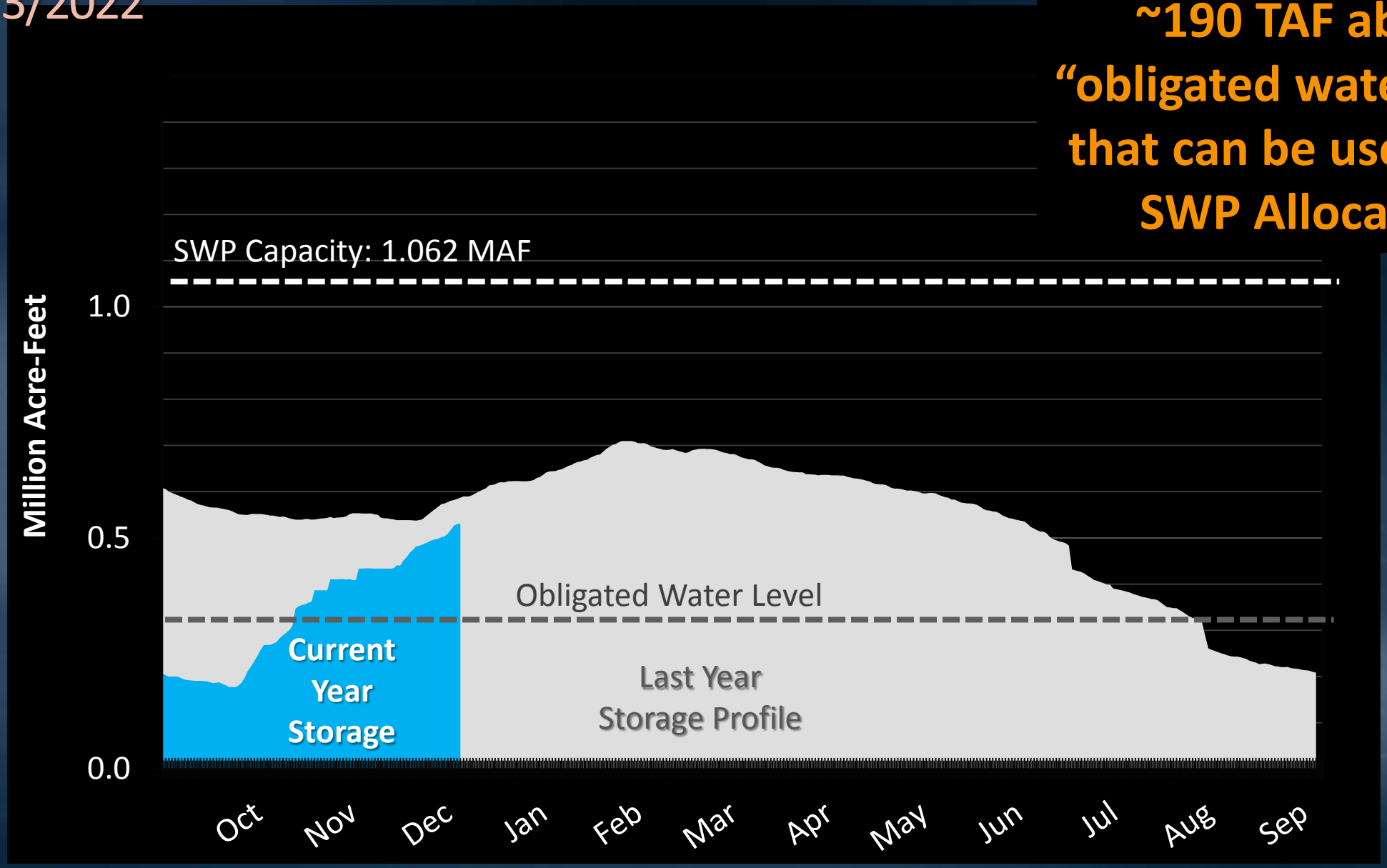
Achieved through a combination of actual storage increases and forecasted runoff from snowpack

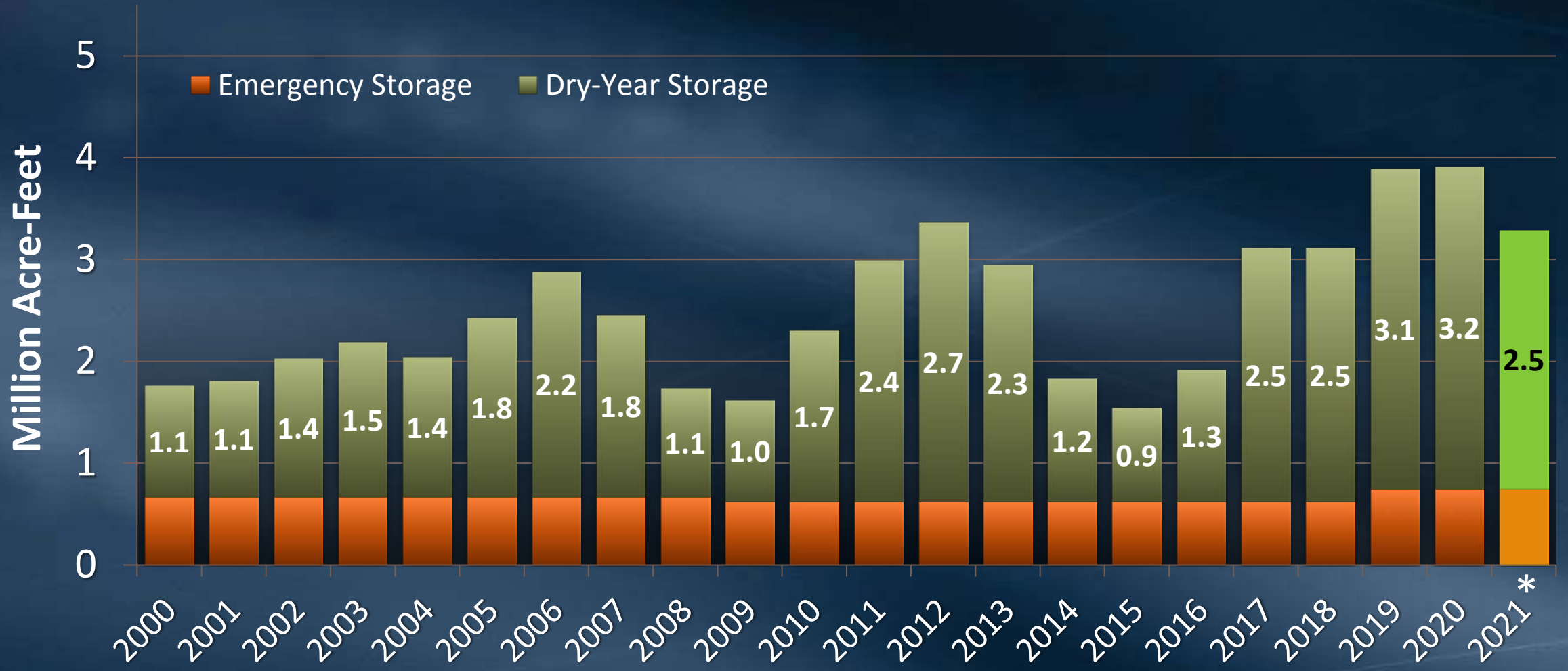
San Luis Reservoir – SWP Share

As of 1/3/2022

~190 TAF above "obligated water level" that can be used for a SWP Allocation

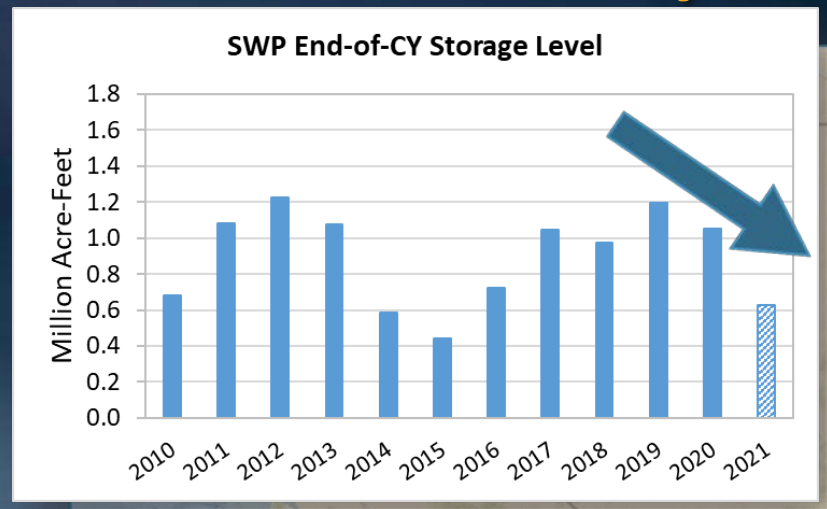


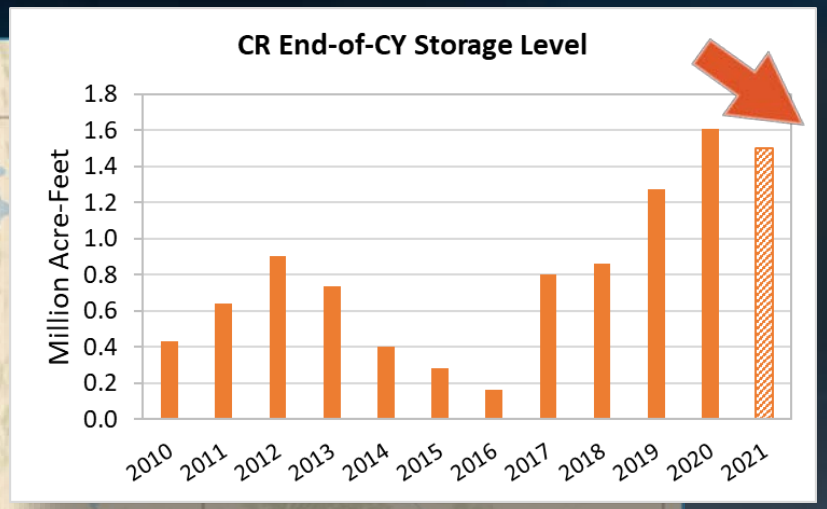
End of Year Storage Balances



** Estimate – May change based on supply/demand conditions*

2021 end of year balances





Update:

- Higher priority water users increase consumption
- Lake Mead ICS net take in 2021
- End-of-year total storage balance: 2.54 MAF

MWD's Draft IRP Findings Focused On Need To Address Needs In SWP Reliant Areas

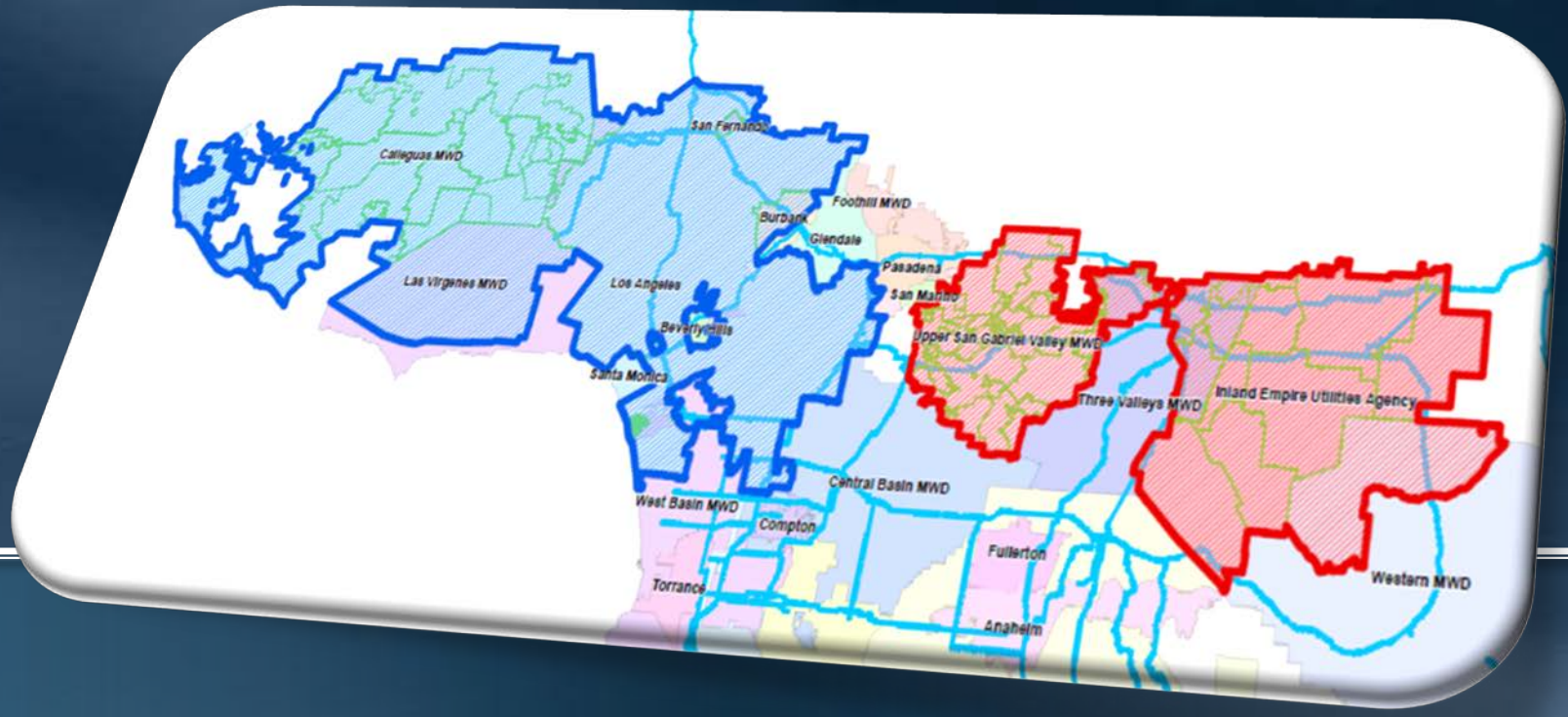
Focus Area 1: Reliability

Focus Area – Reliability

The goal of Metropolitan's investments is to avoid retail water shortages and mandatory end-use cutbacks

- Tolerance for voluntary conservation varies among member agencies
- Southern California embraces conservation as a way of life– separate and apart from mandatory cutbacks
- Regional success is for every Southern California consumer and business to have access to affordable, high-quality water at all times

Focus Area 2: SWP Dependent Areas



Focus Area – "SWP Dependent Areas"

Portions of Metropolitan's service area are more susceptible to reductions in SWP supplies

- This is a risk to the region's reliability. In general, resolving reliability issues for the "SWP Dependent Areas" addresses the larger reliability issues for the entire region.
- The IRP Needs Assessment found that whenever shortages occur, they involve the "SWP Dependent Areas"

Focus Area – SWP Dependent Areas – Cont'd

Areas to investigate in the IRP Implementation Phase to resolve the "SWP Dependent Area" reliability challenges *over the long-term*

- Investments in distribution system to enhance flexibility
- Maintaining existing SWP supply reliability
- Developing new supplies and/or storage that are accessible to the "SWP Dependent Areas"

Focus Area – SWP Dependent Areas

Metropolitan must resolve "SWP Dependent Area" reliability issues *during the SWP's current drought emergency*

- Manage and meet "SWP Dependent Area" demands
- Enhance system flexibility in order to convey existing supply to the "SWP Dependent Areas"
  - Conduct Severe Drought Assessment to address system flexibility
  - Fast-track actions for short-term implementation to address current drought
  - Longer lead-time actions may be folded into the IRP Implementation Phase